The Development of Medical Care in Polish Paralympic Sport

Rozwój opieki medycznej w polskim sporcie paraolimpijskim

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Abstract
Precursory research among athletes took place during the interwar period of the 20th century at university centres, which laid the foundation for present sports and medical counselling. The first study was founded in Lvov in 1924. Initially, care was provided for non-disabled athletes, despite the fact that international dispute disagreements were established in those years. The interest in medical care of athletes with disabilities increased at the end of the previous century, along with the development of Paralympic sport. At the beginning of the 21st century, entire chapters devoted to this subject appeared in sports medicine textbooks. In 2018, in the book titled "*Adaptive Sports Medicine*", it was finally confirmed that so-called 'pre-participation evaluation' is important in assessing the health status of all athletes with disabilities. However, in Poland, up until the end of the 20th century, people with various disabilities practicing sports were practically not interested in sports medicine. Analysis of available documentation and domestic literature suggests that the development of medical care in Polish Paralympic sport took place in four periods, ranging from pre-participation evaluation rehabilitation to the implementation of mandatory research in the field of sports medicine. Moreover, the Paralympic Games in Atlanta (1996) proved to be an important event in this aspect. For the first time, the Polish representation was accompanied by a specialist in sports medicine and a massage therapist. Apart from this, a breakthrough in the development of medical care was the establishment of the Polish Paralympic Committee in 1998, which undertook many initiatives in this area. However, it was only in 2012, following the Regulation of the Minister of Health from 2011, that obligatory tests in the field of sports medicine were enforced for all Polish athletes and representatives of the Paralympic team. But unfortunately, to this day, medical care is stock and limited to the time of Olympic participation.

Słowa kluczowe
rozwój opieki medycznej, rehabilitacja, sportowcy niepełnosprawni, badania lekarskie, igrzyska paraolimpijskie

Streszczenie
Prekursorskie badania lekarskie wśród sportowców miały miejsce w okresie międzywojennym XX wieku w ośrodkach uniwersyteckich. Dały one podwaliny dla poradnictwa sportowo-lekarskiego. Pierwsze z nich powstało we Lwowie w 1924 roku. Pierwotnie opieką objęci zostali wyłącznie zawodnicy pełnosprawni, mimo że w tych latach powstawały międzynarodowe organizacje sportu niepełnosprawnych. Zainteresowanie opieką medyczną sportowców z niepełnosprawnością wzrosło pod koniec ubiegłego wieku, wraz z rozwojem sportu paraolimpijskiego. Początkiem obecnego stulecia w podręcznikach medycyny sportowej ukazały się całe rozdziały poświęcone tej tematyce. W 2018 roku w książce *„Adaptive Sports Medicine"* ostatecznie potwierdzono, że badania lekarskie tzw. *pre-participation evaluation* są istotne w ocenie stanu zdrowia każdego zawodnika z niepełnosprawnością. Jednak w Polsce do końca XX wieku osoby trenujące z różnymi dysfunkcjami praktycznie nie były w kręgu zainteresowania medycyny sportowej. Z analizy dostępnej dokumentacji oraz krajowego piśmiennictwa wynika, że rozwój opieki medycznej w polskim sporcie paraolimpijskim przebiegał w czterech okresach, począwszy od rehabilitacji, aż do wdrożenia obowiązkowych badań z zakresu medycyny sportowej. Ponadto ważnym wydarzeniem w tym aspekcie okazały się Igrzyska Paraolimpijskie w Atlancie (1996). Po raz pierwszy polskiej reprezentacji towarzyszył lekarz specjalista medycyny sportowej i masażysta. Poza tym przełomowe znaczenie

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dla rozwoju opieki medycznej miało powołanie w 1998 roku Polskiego Komitetu Paraolimpijskiego, który podjął wiele inicjatyw w tym zakresie. Przy czym dopiero w 2012 roku, w ślad za Rozporządzeniem Ministra Zdrowia z 2011 roku, wyegzekwowano wprowadzenie obowiązkowych badań z zakresu medycyny sportowej u wszystkich polskich zawodniczek i zawodników kadry paraolimpijskiej. Ale niestety, do dnia dzisiejszego, opieka medyczna jest akcyjna i ogranicza się do lat rozgrywania igrzysk paraolimpijskich.

INTRODUCTION

During the interwar period of the 20th century, precursory studies had already taken place among athletes at the university centres in Lviv, Poznan and Warsaw. They provided the foundation for scientific sports and medical counselling.

In 1924, the Sports and Medicine Laboratory was opened at the Department of General and Experimental Pathology, Jan Kazimierz University. It was managed by a military doctor, Władysław Fuchs-Dybowski, while at the Physical Education Centre of Poznan University with a functioning physiological laboratory in operation, the Sports and Medicine Clinic managed by Włodzimierz Missiuro was created. Also in 1924, the Sports Clinic at Ujazdowski Hospital was opened in Warsaw, and in 1926 - the Sports-Medical Clinic of the Warsaw Female Rowing Club[1].

In 1927, during the first meeting of the newly formed Physical Education Scientific Council, Stanisław Rouppert gave a report "*On the Organisation of Medical Care for Physical Education and on the Preparation of Doctors – Specialists in Physical Education*"[1]. In the same year, the Medical Section of the Polish Olympic Committee was established under the supervision of Włodzimierz Missiuro. Its task was to carry out sports and medical examination among athletes preparing for participation both in the winter and summer Olympic Games in 1928[1].

It should also be mentioned that in the year of the Olympic Games (1928), during the winter Olympic competition in Sankt Moritz (Switzerland), the International Federation of Sports Medicine was established. Among the co-founders there was, among others, a Polish doctor – Władysław Fuchs-Dybowski, who was called to the presidium of the federation[1]. He also participated in the First Congress of the International Federation of Sports Medicine at the Summer Olympics in Amsterdam (the Netherlands) – alongside many Polish doctors – at which he presented a lecture entitled "*Unification of Medical Examination for the Purposes of Physical Education and Sport*". The convention materials from this congress include a study by Włodzimierz Missiuro discussing the subject of medical control in sports training[1].

Analysis of available literature suggests that the above-mentioned activities were exclusively focused on the environment of non-disabled athletes. However, it should be stressed that at that time and after World War 2, there were no scientific reports pointing to the need to implement medical examination among athletes with disabilities, despite the fact that some international organisations for disabled athletes in sports had already been functioning[2]. In 1924, the International Committee for Silent Sports (CISS – Le Comité International des Sports Silencieux) was established, in 1959 – the International Stoke Mandeville Games Committee (ISMGC), in 1964 – the International Sport Organization for the Disabled (ISOD) [2], and only at the end of the 20th century did the work by Mitten[3] appear, drawing attention to this topic, targeted at people with various types of disabilities practicing recreational sports.

Similarly, in sports medicine textbooks from the 20th century, it was impossible to find the topic of disabled sports. Only in the book "*Disability Sport*"[4] was the issue of the importance of sports medicine for people with disabilities discussed. At the beginning of the present century, in the study by Smith and Loud[5] devoted to sports medicine, there were references to this issue, and in subsequent years, entire chapters in books[6,7]. In 2011, another item appeared – "*The Paralympic Athlete*" edited by Vanlandewijck and Thompson[8], which comprehensively discusses the roles of science and medicine in Paralympic sport. Not too long ago (2018), in the book "*Adaptive Sports Medicine*" – edited by De Luigi, in the part II[9] "*Special Consideration in the Disabled Athlete*" – it was pointed out that 'pre-participation evaluation' is important in assessing the health status of each athlete in individual disability groups.

Taking these aspects into consideration, it should come as no surprise that in Poland, up until the end of the 1990s, people with disabilities practicing sports were practically not interested in sports medicine. There were several reasons, but the most important result from the a priori definition that was in force in recent years: "*Sports medicine is a field of medicine whose subject of research and control is a healthy person practicing any form of physical education in order to increase health potential as well as physical and mental fitness*"[A 10]. It was not until the end of the 1990s that the concept of sports medicine was perceived much more broadly as medicine for physical activity[11]. In addition, sports medicine as an interdisciplinary field of medical knowledge began to deal with not only healthy, physically active individuals at all stages of life, but also during illnesses, including various disabilities[12,13].

[A] Pg. 10-11

MEDICAL CARE IN POLISH PARALYMPIC SPORTS

The process of medical care development in Polish Paralympic sport was conducted in several periods, starting from rehabilitation, through medical care exercised in disabled co-operatives, and then in the form of immediate care and medical supervision, and finally, the implementation of mandatory research in the field of sports medicine.

First period – form of rehabilitation (1949-1960)

The beginnings of the development of Polish sport for the disabled – including the Paralympic Games – were primarily associated with sports activities functioning at the level of rehabilitation and recreation, and only a few people with disabilities attempted to go the qualified sport route. Focused in rehabilitation centres as well as medical and care facilities, this issue remained under the care of doctors and physiotherapists working at them[14]. An example of such action was that of Mirosław Leśkiewicz, who at the Department of Treatment and Education for Disabled Children in Świebodzin – in 1949 – introduced sports and recreational activities to the rehabilitation programme as a basic factor for maximum physical rehabilitation in patients[15,16].

While discussing this period, it is impossible to ignore Poznań rehabilitation centres. Thanks to Wiktor Dega, the creator of the Polish school of rehabilitation, not only movement in the form of physical exercises but also participation in selected sports disciplines became a recognised form of treatment. His experience has been used in the rehabilitation of people with motor organ damage[17]. Then, Janina Tomaszewska drew attention to skiing as a method of rehabilitation for people with disabilities. Thanks to her initiative - in 1956 - in Cieplice Zdrój at the Centre for Science and Rehabilitation of the Poznań Medical Academy Orthopaedic Clinic, the first ski course was organised for patients following limb amputation[18,19]. In turn, under the direction of Aleksander Kabsch – in 1959 – in Bukowina Tatrzańska, the first treatment and rehabilitation session for people working at co–ops for the disabled took place[20].

Similar activities were also undertaken by Marian Weiss at the Bone Surgery Hospital in Konstancin – later at the Capital Rehabilitation Centre in Warsaw (STOCER). In the 1950s, he included basic exercises from selected sports disciplines in the rehabilitation process[21].

Analysing the above-mentioned conditions prevailing up until the 60s, one should assume that the then adopted form of sport activity for people with disabilities did not require medical support in the field of sports and medical care. It was probably thought that sports activity alone was enough proof of 'good health' and the importance of the care needed by athletes who were able to practice sport at a competitive level was not recognised.

Initially, as criteria in the adjudication of sport, the guidelines from 1949 were applied – developed by Stanisław Tokarski in the field of surgical diseases, and internal diseases – according to Wacław Sidorowicz[22]. Hence, it should not come as a surprise that the first legal regulations regarding medical examination of athletes that appeared in Poland – Guideline No. 8/53 of the Minister of Health dated Feb. 10, 1953[23] and Guideline No. 9/53 of the Minister of Health dated Feb. 11, 1953[24] – were prepared solely for non-disabled athletes.

Second period – medical care in a co-op environment (1961-1995)

In subsequent years, Polish sport of the disabled was not in the field of interest of sports medicine and medical counselling. It is possible that this was caused by a different factor.

In 1961, an agreement was signed between the "START" Sports Association and the Association of the Co-operative for the Disabled. This resulted in the introduction of simple forms of recreation and mass sports into the co-operative of the disabled. What is more, in order to provide people having disabilities with conditions for practicing sports, "START" sports clubs were set up at disabled co-ops[14]. That is why direct care over the athletes was carried out by physicians and physiotherapists having posts at disabled cooperatives. Perhaps this is the reason why the next Regulation of the Minister of Health and Social Welfare on the control of health among people practicing physical exercises in an organised manner[25] – did not consider the need to provide care for people with disabilities.

However, it should be emphasised that as a result of systematic sports training, it was possible to see a higher level of sports among some players. Thus, it gave them the chance to take part in competitions at not only a national level, but also abroad, as well as in the European and world environment, and consequently, even receiving Paralympic nominations[14]. Under these circumstances – the transition from the form of recreation/rehabilitation to competitive sport – the first comments and requests to provide coaches with proper medical care appeared on the part of Polish representatives[26].

Analysis of the source materials from the Main Council of the Sports Association of the "START" labour co-op[27,28,29] and the Main Council of the Sports Association "START" co-op[30] confirmed that until 1996, the national team representatives did not all receive specialist sports medical care. Therefore, in the opinion of the 1992-1998 paralympians, neglecting these needs has often been the cause of their health problems, often preventing participation in systematic training, and at further stages, even taking part in competitions[26]. Therefore, it can be assumed that over time, doctors working at cooperatives did not meet the expectations of regularly training competitors – from 2 to 3 times a week[31] – and seeking improvement in sports performance.

It should also be mentioned that in the environment of athletes with disabilities, there were people who also competed for medals together with those non-disabled. In the 1970s, in contrast, adjudication guidelines – "Basis for Qualification to Practice Competitive Sport"[32] were a barrier preventing disabled athletes from joining the competition together with healthy athletes. It was believed that in the qualification of competitors for competitive activity, in-born limb distortions, their lack, defects or overgrowth "*do not constitute a subject of interest as being too disabilitative. Only developmental deformities of the hand were not contraindications to practice sports by persons with this dysfunction, and their efficiency in a given discipline was to be decisive*"[B 32]. The exception regarded so-called technical disciplines – archery, shooting, etc., where dysfunctions of the musculoskeletal system did not disqualify from professional activity[33].

As a result, only a few disabled athletes competed with those non-disabled at various levels, including the Olympic Games. An example is archer Tomasz Leżański. In Munich (1972), he competed for Olympic medals, and in Atlanta (1996), Sydney (2000), Athens (2004) and Beijing (2008) – for Paralympic medals. Another athlete performing the same discipline is Wojciech Szymańczyk, a participant of the Olympic Games in Montreal (1976) and the Paralympics in Arnhem (1980)[34].

Third period – ad hoc control and medical care (1996-2006)

An important event – from a medical perspective – for the Polish sport of people with disabilities proved to be the 1996 Paralympic Games in Atlanta. For the first time, during the competition, the national team was accompanied by a sports medicine specialist – Romuald Lewicki, and massage therapist – Wiesław Król[35]. It should be emphasised that this fact had then become a rule at subsequent summer and winter Paralympic events (Tab. 1).

It can be assumed that the following factors influenced the appearance of the persons mentioned during the Games in Polish Paralympic sport, namely, from a formal point of view, the narrow understanding of sports medicine to date, "*whose subject of testing and control is a healthy individual*", has ultimately been abandoned[C 10]. In addition, the development of rivalry in Paralympic sport on the international arena, changes in regulations aimed at increasing the importance of physical fitness characteristics and not only the degree of disability, brought forward threats to professional sport, and thus, the need to monitor the health of athletes. What is more, this forced the presence of widely understood sports medicine within this aspect.

In view of the above, further activities appeared. At the initiative of the physician of Romuald Lewicki's team, before the following Paralympic Games in Nagano (1998), for the first time, athletes' fitness tests were carried out, preceded by general and laboratory tests. They took place in January 1998 at the Military Medical Academy in Łódź, but only for the cross-country skiing team[47]. With time, they proved to be the first attempt to introduce a model for disability qualifying-examination, then valid among female athletes and non-disabled players[48].

A breakthrough in the development of sports and medical research in the sport of people with disabilities was the establishment of the Polish Paralympic Committee (PKPar) in 1998. Its members had already joined the paralympic preparation programmes in Sydney (2000), Salt Lake City (2002), etc. Among others, from the funds of the Physical Culture Development Fund, they obtained resources for financing medical tests[49]. Hence,

Table 1

Medical care for a Polish athlete during the summer and winter Paralympic Games in the years 1996-2018*

Summer Paralympic Games	Doctors (n)	Physical Therapists Massage Therapists (n)	Winter Paralympic Games	Doctors (n)	Physical Therapists Massage Therapists (n)
Atlanta (1996)	1	1	Nagano (1998)	1	1
Sydney (2000)	2	3	Salt Lake City (2002)	1	1
Athens (2004)	3	3	Turin (2006)	1	1
Beijing (2008)	3	4	Vancouver (2010)	1	2
London (2012)	2	7	Sochi (2014)	1	1
Rio de Janeiro (2016)	3	11	PyeongChang (2018)	1	2

*own elaboration based on published Polish team composition from above-mentioned years of olympics[35-46]

[B] Pg. 19
[C] Pg. 10

further research (after 1998) took place, inter alia, at the Sports Medicine Department of WAM in Łódź, the Sports Centre in Spała, the Main Aero-Medical Research Centre in Wrocław and other centres in Kraków (AWF), Poznań, Bydgoszcz, Nowy Sącz (NZOZ Medicina Sportiva) and Katowice[50]. The outcome of the research among athletes with disabilities were several published scientific reports covering the topic of performance diagnostics[51,52] and medical examination among disable skiers[53,54,55].

Discussing the development of medical care in Polish Paralympic sport, the initiatives undertaken in 1999 by the PKPar authorities to organise scientific conferences should also be mentioned. Their aim was to improve the training of paralympic coaches and to exchange experience within the group of scientists, physicians and psychologists cooperating with professional athletes. The first conference devoted to the theory and practice of sports training took place from 28 to 30 Sep., the second, from 6-8 Dec. the same year, and it regarded the psychological aspects of the sport of the disabled. Both meetings took place at the Olympic Preparations Centre in Spała. As a final result, the content discussed there appeared in a publication entitled "*Training Disabled Athletes*" issued by PKPar in 1999[56]. Additionally – in 1999 – another sports medicine specialist conference was held, this time at the PZSN START Sports Centre in Wisła. During the meeting, not only cooperation with athletes was discussed, but above all, its specificity in relation to female and male athletes with various disabilities. However, it should be noted that the idea of this meeting was to initiate the creation of the Medical Board of the Polish Paralympic Committee[57]. The next conference took place in June 2001 in Dobieszków near Łódź. In post-conference materials titled "*Medicine and Sports Among the Disabled*"[57], in the foreword, Romuald Lewicki – chairman of the Medical Board – points out that "*in sport of the disabled, reliable psychomotor diagnosis, systematic control of the health of athletes and proper cooperation of physiotherapists, coaches, psychologists and activists, is the basis for achieving success in sports. This cooperation should also give athletes a sense of security in sports, guaranteeing that their disability does not deepen*"[D 57]. Also noteworthy is the fact that outstanding specialists from various medical disciplines came to the conference in Dobieszków, who offered their scientific experience to the sport of people with disabilities.

In conclusion, it can be said that the initiative of the PKPar authorities in the field of practical operation of the Medical Commission was limited to the appointment of three coordinating doctors in 2001 under the direction of Romuald Lewicki. Their task was to provide medical care for athletes and representatives of the Paralympic team in individual regions of the country. With time, due to lack of financial resources, this activity disappeared.

It is important when analysing the documentation of the PZSN "START" and PKPar to note that considering the above-mentioned scientific and organisational initiatives, during the discussed period, medical care for athletes focused on two tasks in principle. The first one is conducting one-time medical examinations among representatives from selected disciplines and mainly during the period of direct preparation for the Paralympic competition. However, the only exception turned out to be the long-term research carried out by the sports medicine specialist Wojciech Gawroński among athletes and competitors practicing cross-country skiing. This took place in 2001-2010, 1 to 3 times a year, depending on the financial capacity of PZSN "START" and the research was of comprehensive nature. The study consisted of comprehensive physical efficiency tests preceded by prophylactic periodic tests, similar to those for non-disabled athletes. A selected group of representatives participated in the tests, selected by successive coaches of the national team[58]. The remaining medical examinations in the environment of Paralympians, regarding summer and winter disciplines, were carried out occasionally. Hence, they could not replace the much needed medical care expected by the athletes during their preparations to start in the Games. Opinions of Polish paralympians from 2004-2006 confirmed the lack of constant consultation with a doctor, and also cooperation with a massage therapist, physiotherapist, psychologist and dietitian[59,60].

The second task in the field of medical care was carried out only in the games years (since 1996) and was focused on direct medical care during the Paralympic Games. The physician and massage therapist were responsible for the health condition of Polish athletes and, in time, so was the physical therapist.

Despite the fact that the number of people on the medical staff increased in Paralympic representations in the following years (Tab.1), it always remained very modest in comparison to other European countries. Attention is drawn to the phenomenon that a medical team was never organised to care for Polish Paralympians, which was customary in the case of other national teams. For example: the 12-person medical team accompanying 205 disabled athletes and competitors from Great Britain, already during the Games in Barcelona (1992), consisted of: a general practitioner, an orthopaedic specialist, 7 physiotherapists, 2 nurses (trained in traumatic spinal cord injury) and a specialist in prosthetics[61].

[D] Pg. 3

Fourth period – implementation of compulsory sports medicine tests (2007-2018)

Efforts made by sport medicine specialists related to the sports environment of people with disabilities finally brought the expected results. In 2007, the Regulation of the Minister of Sport[62] legally sanctioned the obligation and scope of medical examination among athletes with disabilities. However, in the end, it did not solve the problem.

Article 9 of the above regulation, stating that "*medical care also includes preventative measures, treatment, rehabilitation and actions coordinating treatment and rehabilitation processes* ..."[E 62], athletes of the national and paralympic team remained with a record divergent from reality. This is confirmed by the fact that preparticipation was not carried out near the place of residence of Polish representatives (Beijing 2008) due to lack of financial resources, while the Centre of Sports Medicine in Warsaw, which received these funds, did not undertake them before the Paralympic events. However, the appointment of two coordinating doctors by PKPar was not a sufficient solution this time. In practice, the tasks were limited only to: anti-doping education of competitors during visits to training camps to familiarise them with their disability and health status, and to undertake short-term actions at the moment of identifying certain ailments for competitors preparing for the Paralympic Games in Beijing.

Additionally, on the one hand, legally sanctioned medical examination of athletes with disabilities[62], and on the other, the problem of the lack of possibility to provide systematic and organised medical care by sports clubs and associations, including access to a physician, physiotherapist and consultations with a psychologist and dietician, there were further medical concerns of the athletes and their coaches.

The very low assessment of medical care during the preparation period demonstrated by the Polish paralympians in Beijing (2008)[63] began to raise a great deal of anxiety, especially when confronted with the cited regulation. This was to guarantee athletes with disabilities not only preliminary, periodic and control (or occasional) examinations in the case of various traumatic injuries of the musculoskeletal system or illness, but also permanent medical care covering both prevention as well as treatment and rehabilitation. Unfortunately, the possibility of using this care was connected with travel to Warsaw, which in practice, is difficult for even non-disabled individuals.

The head of the medical team of the Beijing Polish Paralympic mission (2008)[64] talked about the lack of proper sports and medical care at that time. In his opinion, it was a serious problem was that only about 10% of Polish representatives had reliable periodic examinations before going to the Olympics. This was due to the fact that the current research envisaged by the Regulation, despite direct intervention at many levels, including the achievement of a senatorial interpellation, were ultimately not implemented. Thus, the friendly concept included in the Regulation, enabling the examination of athletes by sports medicine specialists in the vicinity of their place of residence, turned out to be impossible "*... due to the referral to the Central Sports Medicine Centre (COMS). As a last resort, when some athletes wanted to study in COMS, it turned out that there was lack of organisational capabilities in this unit. Hence, it can be assumed that some athletes have 'arranged' exams, as confirmed by the Paralympians themselves, and most of the representatives gave up their tests altogether. It was also partly due to the specific approach of the athletes and disabled competitors to health problems*"[F 64]. Thus, the quotation clearly shows that athletes and their coaches misunderstood the basic purpose of sports medicine, which is the systematic control of health. In addition, this indicates the lack of consistency in the implementation of medical examination and consultation in this area from organisations associating training people with disabilities.

What is even worse is that the situation described above had impact on the subsequent work of the Polish medical mission in Beijing. Access to the polyclinic with full diagnostics in the paralympic village made many athletes, even those with minor disabilities, want to learn more about the state of their bodies during the pre-start period. This resulted in frequent requests for diagnostic tests to be done in the country and much earlier – before departure for the Games[64]. In following years, the provision in the said regulation stated that: "*representatives of the national team with disabilities and Paralympic staff are referred by the organisation preparing competitors to participate in international sports competitions of disabled people for tests conducted by a specialist in sports medicine*"[G 62]. Such wording of the provision would make it possible to carry out research not necessarily in COMS in Warsaw, but within the budget, at other centres.

However, in 2007-2014, the team of skiers, biathletes and downhill skiers did not participate in medical examinations – preliminary or periodic – financed by COMS Warsaw. These examinations were carried out by a sports medicine specialist at a clinic near the residence of the majority of athletes, but for a fee from the PZSN "START" funds or obtained by sponsors.

It should be emphasized that in the period of Paralympic preparations, it was never possible to pro-

[E] Pg. 292
[F] Pg. 94-95
[G] Pg. 291

vide funds for the creation of a medical team – one that would include not only a specialist in sports medicine, but also a physiotherapist, masseur and specialist in the field of nutrition and a sports psychologist. Only a symbolic fund was secured for medical care, but it could only conducted during the time of groupings, and was, at most, sufficient enough for ad hoc medical examinations and treatment. In addition, one cannot overlook the fact that from 2009 to 2014, cooperation with doctors was not continued due to lack of financial resources. This is confirmed by systematic scientific research carried out among the national team just before the departure of athletes for the subsequent paralympic competition[60,65].

In connection with the problems presented above, as well as the experience gained during the pre-Olympic games and ongoing documentation during the Paralympic events in Beijing, indicating an excessive number of reported ailments[64], the head of the medical mission was prompted to strictly enforce the requirement that athletes undergo medical examination in the area of sports medicine before the London Games. Support for such action was also expressed by the PKPar authorities, under the threat of preventing the athletes' Paralympic nomination[66]. The undertaken efforts took place at two stages[67]. During the first one, athletes were recommended to undergo basic sports medicine research, at the latest, 6 weeks before their trip to the Olympics, using the possibility of free medical services at COMS in Warsaw. In the case of people who for various reasons could not do this at the above-mentioned centre, it was recommended to undergo paid tests at 9 other recommended clinics, designated closest to the place of residence of the athlete. Moreover, before departure to the Paralympic Games, on the basis of evaluation and photocopies of the results of the carried out tests (with the exception of the persons tested in COMS), their validity was verified, as well as the scope of laboratory and specialist examinations, specialist consultations, medical, pharmacological and physiotherapeutic recommendations, as well as evaluation of the above-mentioned tests at individual sports medicine centres. During the second stage, all the nominated Paralympians, after arriving in London, underwent medical examination to assess their current health status.

Summing up, it can be concluded that the undertaken actions were successful. The effect of these actions was significant reduction in the number of ailments and traumatic injuries among athletes during the Games in London compared to Beijing[68]. It should also be emphasized that the patterns presented above were enforced in sports medicine research before the following Paralympic Games in 2016 and 2018.

For the first time, significant financial resources from the State Fund for Rehabilitation of Disabled People (PFRON)[69] were obtained to secure medical care, allocated in preparation for the Paralympic Games in Rio de Janeiro (2016). Access to medical care was generally provided (82% – athletes from Polish sports associations, 88% – athletes from national organisations associating only people with disabilities), cooperation with: a physiotherapist (respectively: 73% and 88%), a massage therapist (respectively: 64% and 95%), a psychologist (respectively: 68% and 64%), and occasionally, a dietician (28% and 35%, respectively) as well as a physiologist (23% and 24%, respectively).

At the same time, opinions regarding the mentioned cooperation, both of the athletes themselves and their coaches, turned out to be very diverse – from satisfactory to unsatisfactory[70]. In addition, the composition of the Polish medical mission created for the 2016 Brazil Summer Paralympic Games deserves attention. Since 1996, it was the most numerous, comprising 14 members – 3 doctors and 11 physical therapists (Tab. 1).

CONCLUSIONS

Presentation of the positive results obtained making informed decisions in the care of an athlete during the period of paralympic preparations is not an end to the problems to be solved in the implementation of the objectives of sports medicine. They remain very difficult for implementation among people with disabilities in the Polish sports environment.

The provisions contained in the Sports Regulation from Jun. 25, 2010, testify to the recognition of the national team and its preparations for the Paralympic Games, the Deaflympics, World Championships or European Championships on par with the non-disabled athletes of national and Olympic teams[71]. Thus, this was expressed in the Regulation of the Minister of Health from Apr. 14, 2011, "*on the scope and manner of providing medical care for athletes qualified for the national team in Olympic and Paralympic sports*"[72] and in the next Regulation of the Minister of Health from Dec. 18, 2015[73], in which care was also extended to athletes with hearing impairments. Therefore, the proposed regulations guarantee disabled participants access to periodic medical examinations and medical care financed from the state budget, but only at COMS Warsaw, which still only partially solves the described problem.

In the years 2015–2016, as part of the project "*Olympian – Preparation of Disabled Athletes to Participate in the Paralympic* Games", during the meetings for separate groups of paralympic disciplines, workshops and seminars on healthy nutrition, supplementation as well as anti-doping procedures were organised for athletes and coaches. In addition, the COMS doctors from Sep. 3 to 7, 2015 in Cetniewo, conducted preliminary medical examinations before the Paralympic Games in Rio de Janeiro. Further research in 2016 was also carried out by COMS Warszaw[74]. A similar situation occurred prior to the

PyeongChang Paralympic Games (2018). Just before the Olympics, on Feb. 26, 2018, an agreement was signed under which the LUX MED Group became the Main Medical Partner of PKPar. It is to provide comprehensive medical care to Polish athletes preparing for the Paralympic Games[75]. However, after performing detailed analysis of the data obtained from the surveys, it can be noted that this procedure, unfortunately, still has share-character, implemented only in the period before the Games[76].

It should be noted that during various trainings for coaches and activists as well as during the National Scientific Conferences: "*People with Disabilities in Sport – Theory and Practice*" in Katowice (Jun. 26, 2015 and Jun. 9, 2017), repeated appeals of the doctor of the Paralympic mission appeared (in 2006-2014). They referred to the reactivation of the Medical Commission at PKPar, a model of the International Medical Commission and the Polish Olympic Committee, or the appointment of Medical Teams. It is the sad truth, but they have not found understanding among the decision makers of Polish paralympic sport. Therefore, an urgent solution to the problem requires the sanctioning of forms of systematic cooperation among interested physicians with individual paralympic staff and permanently employing at least one physical therapist for each group of athletes in a given discipline.

Under these circumstances, it is necessary that in the next period of preparation, the concept of a sports and medical care system for competitors in particular Paralympic disciplines in the perspective of their participation in the Games be developed and regularly implemented, and enforced in unions and associations acting for the cause of disabled sports[77]. In addition, monitoring the authorities of the Polish Paralympic Committee for systematic medical care of Polish athletes with disabilities becomes a necessity because of the other, less optimistic, conditions of sport.

First of all, striving for ever better sport results in a given discipline, providing the opportunity to qualify for the national team, and then, winning a Paralympic medal, exposes the athlete to typical postraumatic damage and overloading of the musculoskeletal system and diseases that occur in non-disabled athletes. This fact was confirmed by studies on traumatic injuries and illnesses among competitors from Poland during the summer[68,78] as well as winter Paralympic games[65].

Secondly, the modern training process of people with disabilities involving a significant load on the body causes athletes to use a number of measures generally referred to as support, and they are constantly looking for new ways to exceed their limits. As we know, in competitive sport, it happens that prohibited substances and methods (doping) are used, which has, unfortunately, also penetrated Paralympic sport[79]. Hence, the broadly understood medical care and education of athletes and coaches is essential in contemporary sport of the disabled, and especially among athletes of Paralympic disciplines so that the outcome of sports is determined by the features of physical fitness limited only by the type of disability.

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